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Coexistence of MACC1 and NM23-H1 dysregulation and tumor budding promise early prognostic evidence for recurrence risk of early-stage colon cancer

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Abstract

© 2017 APMIS. Published by John Wiley & Sons Ltd The tumor-node-metastasis (TNM) classification, the presence of a mucinous component, and signet ring cells are well-known criteria for identifying patients at a high risk for recurrence and determining the therapeutic approach for early-stage colon cancer (eCC). Nevertheless, recurrence can unexpectedly occur in some eCC cases after surgical resection. The aims of the present study were to evaluate the relation of dysregulated MACC1, c-MET, and NM23-H1 expression with the histopathological features of tumors in recurrence formation in eCC cases. A total of 100 sporadic eCC patients without poor prognosis factors were evaluated in this study. The relationship between the altered expression of MACC1, c-MET, and NM23-H1 and pathological microenvironmental features, including the presence of tumor budding and desmoplasia, were assessed. The primary outcomes, including 5-year overall survival (OS) and disease-free survival (DFS), were also measured. Compared with nonrecurrent patients, the expression level of MACC1 was 8.27-fold higher, and NM23-H1 was 11.36-fold lower in patients with recurrence during the 5-year follow-up ($p = 0.0345$ and $p = 0.0301$, respectively). In addition, the coexistence of high MACC1 and low NM23-H1 expression and tumor budding was associated with short OS ($p < 0.001$). We suggest that the combination of reduced NM23-H1, induced MACC1, and the presence of tumor budding are promising biomarkers for the prediction of recurrence and may aid the stratification of patients with stage II colon cancer for adjuvant chemotherapy.

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Keywords

colon cancer, early stage, metastasis-associated colon cancer-1, NME/NM23 nucleoside diphosphate kinase 1, tumor budding

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